(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 13 January 2005 (13.01.2005)

PCT

(10) International Publication Number WO 2005/004238 A3

(51) International Patent Classification7: H01L 23/544, G01R 31/28, H01L 21/66

(21) International Application Number:

PCT/US2004/020573

(22) International Filing Date: 25 June 2004 (25.06.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/482,278

25 June 2003 (25.06.2003)

(71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS, N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

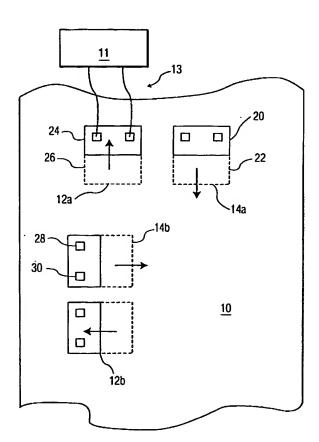
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): AMATO, Joseph M.

[US/US]; 1109 McKay Drive, M/S-41SJ, San Jose, CA 95131-1706 (US).

- (74) Common Representative: KONINKLIJKE PHILIPS ELECTRONICS, N.V.; c/o Shannon Lester, 1109 McKay Drive, M/S-SJ41, San Jose, CA 95131-1706 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: OFFSET DEPENDENT RESISTOR FOR MEASURING MISALIGNMENT OF STITCHED MASKS



(57) Abstract: A system and method for identifying misalignments in an overlapping region of a stitched circuit in an integrated circuit fabrication process. method comprises: creating a first circuit using a reference mask, wherein first circuit includes a first part of an offset dependent resistor structure in the overlapping region; creating a second circuit using a secondary mask, wherein the second circuit includes a second part of the offset dependent resistor structure in the overlapping region, wherein the offset dependent resistor structure includes a plurality of nubs that interconnect the first part and the second part of theis offset dependent resistor structure; measuring a resistance across the offset dependent resistor structure; and determining an amount of misalignment based on the measured resistance.





European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE,

BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 7 July 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.